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Indiana Department of Education

Glenda Ritz, NBCT
Indiana Superintendent of Public Instruction

ISTEP+: Grade 5

Mathematics

Parent Guide to ISTEP+ Scoring

Introduction

Indiana students in Grades 3-8 participated in the *ISTEP+* Spring 2014 administration. The test for *ISTEP+* in Spring 2014 consisted of an Applied Skills section administered in March and a Multiple-Choice section administered in late April and early May. For all grades, the Applied Skills section of the assessment was handscored by trained evaluators. The Multiple-Choice section was machine-scored. Scores for the Applied Skills and Multiple-Choice sections are combined to generate a student's total score.

Test results for both the Multiple-Choice and Applied Skills sections, as well as images of the Applied Skills student responses, are available online. It is the expectation of the Indiana Department of Education that schools will take this opportunity to have a conversation with parents and students about the results. As a springboard for this conversation, the Indiana Department of Education has created this document which outlines the released Applied Skills questions and includes brief scoring notes that describe the given score points and explain the scoring rules and expectations for the individual questions.

This document consists of:

- a brief description of the types of questions assessed
- a short summary of scoring rules utilized by the trained evaluators
- access to rubrics used to score student responses
- a copy of the released Applied Skills questions
- anchor papers used by evaluators to distinguish between rubric scores

NOTE: The Applied Skills operational questions are released at the end of each test administration. It is important to keep in mind that a significant portion of a student's score is calculated from the Multiple-Choice section of the assessment, which is not addressed within this document.

QUESTION TYPES

This document addresses the Applied Skills section of *ISTEP+*, which allows students to demonstrate their understanding of content in a variety of ways. The Applied Skills Assessment consists of constructed-response (CR) and extended-response (ER) questions. CR and ER questions are cognitively more demanding than multiple-choice (MC) questions. ER questions are typically more complex and will likely require more steps to respond.

SCORING

For the Applied Skills Assessment, each question is scored according to a rubric. Rubrics clearly define the requirements for each score point. Each student response is evaluated individually to determine whether it is acceptable. This allows student scores to be reported as accurately as possible. To ensure consistency when scoring the *ISTEP+* questions, CTB/McGraw-Hill works closely with assessment specialists at the Indiana Department of Education and teacher committees to set guidelines for scoring student responses. Committees look at several student papers and score them using the rubrics. Some of the student responses are selected as anchor papers and are used as clear examples of specific score points. Samples of anchor papers are presented within this document. Scoring supervisors then use anchor papers and approved, scored student responses to ensure that responses are evaluated appropriately and consistently. Individuals who evaluate and score *ISTEP+* student responses must have a four-year college degree and pass a series of qualifying tests on specific questions before they can evaluate any student responses.

If a response is unscorable, it is assigned one of the following condition codes:

- **A** Blank/No Response/Refusal
- **B** Illegible
- **C** Written predominantly in a language other than English
- **D** Insufficient response/Copied from text

For additional information regarding *ISTEP+* or other student assessments, please contact the Indiana Department of Education by calling 317-232-9050 or writing via email: istep@doe.in.gov.

The chart below summarizes the question types used to measure a student's mastery of content, the assessment that contains the particular question type, the standards assessed in each assessment, and the scoring method used to evaluate a student's response given the question type.

Scoring Note: All student responses to questions found in each Applied Skills Assessment are handscored using the specific rubric(s) outlined in the column labeled "Scoring Method." As indicated in the chart, all multiple-choice questions are machine scored.

Question Type	Assessment	Standards Assessed	Scoring Method
Constructed-Response (CR)	Applied Skills Assessment	1,2,4,5,7	4-pt. CR Rubric (2-pts. Content and 2-pts. Problem Solving)
Extended-Response (ER)	Applied Skills Assessment	1,2,4,5,7	6-pt. ER Rubric (3-pts. Content and 3-pts. Problem Solving)
Multiple-Choice (MC)	Multiple-Choice Assessment	All	Machine-Scored

More information is available regarding these assessment topics on the Office of Student Assessment homepage at http://www.doe.in.gov/assessment.

Constructed-Response Rubric

	Content Rubric
2	A score of two indicates a **thorough understanding** of the mathematical concepts embodied in the task. The response • shows algorithms, computations, and other content related work executed correctly and completely.
1	A score of one indicates a **partial understanding** of the mathematical concepts embodied in the task. The response • contains errors in the execution of algorithms, computations, and/or other content related work.
0	A score of zero indicates **limited or no understanding** of the mathematical concepts embodied in the task.
	Problem-Solving Rubric
2	A score of two indicates a **thorough understanding** of the problem-solving concepts embodied in the task. The response • shows an appropriate strategy to solve the problem, and the strategy is executed correctly and completely. • identifies all important elements of the problem and shows a complete understanding of the relationships among them. • provides clear and complete explanations and/or interpretations when required.
1	A score of one indicates a **partial understanding** of the problem-solving concepts embodied in the task. The response contains one or more of the following errors. The response • shows an appropriate strategy to solve the problem. However, the execution of the strategy contains errors and/or is incomplete. • identifies some of the important elements of the problem and shows a general understanding of the relationships among them. • provides incomplete, partial, or unclear explanations and/or interpretations when required.
0	A score of zero indicates **limited or no understanding** of the problem-solving concepts embodied in the task.

Clarification and Implementation Guidance

- Correct answers ONLY, on all parts of the problem with no work shown, will receive a maximum of 1 point in content and a maximum of 1 point in Problem Solving.

- A student can receive the top score point in Problem Solving if the strategy used would result in a correct answer even though the response contains computation errors.

- A student can receive the top score point in Problem Solving if an error made in the “content” portion is used with an appropriate strategy to solve the problem.

Extended-Response Rubric

	Content Rubric
3	A score of three indicates a **thorough understanding** of the mathematical concepts embodied in the task. The response • shows algorithms, computations, and other content related work executed correctly and completely.
2	A score of two indicates a **partial understanding** of the mathematical concepts embodied in the task. The response • shows an attempt to execute algorithms, computations, and other content related work correctly and completely; computation errors or other minor errors in the content related work may be present.
1	A score of one indicates a **limited understanding** of the mathematical concepts embodied in the task. The response • contains major errors, or only a partial process. • contains algorithms, computations, and other content related work which may only be partially correct.
0	A score of zero indicates **no understanding** of the mathematical concepts embodied in the task.
	Problem-Solving Rubric
3	A score of three indicates a **thorough understanding** of the problem-solving concepts embodied in the task. The response • shows an appropriate strategy to solve the problem, and the strategy is executed correctly and completely. • identifies all important elements of the problem and shows a complete understanding of the relationships among them. • provides clear and complete explanations and/or interpretations when required.
2	A score of two indicates a **partial understanding** of the problem-solving concepts embodied in the task. The response contains one or more of the following errors. The response • shows an appropriate strategy to solve the problem. However, the execution of the strategy lacks an essential element. • identifies some of the important elements of the problem and shows a general understanding of the relationships among them. • provides incomplete or unclear explanations and/or interpretations when required.
1	A score of one indicates a **limited understanding** of the problem-solving concepts embodied in the task. The response contains one or more of the following errors. The response • shows an appropriate strategy to solve the problem. However, the execution of the strategy is applied incorrectly and/or is incomplete. • shows a limited understanding of the relationships among the elements of the problem. • provides incomplete, unclear, or omitted explanations and/or interpretations when required.
0	A score of zero indicates **no understanding** of the problem-solving concepts embodied in the task.

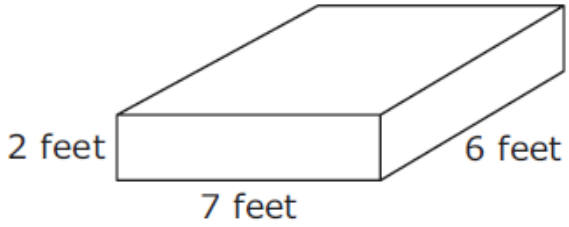
Clarification and Implementation Guidance

- Correct answers ONLY, on all parts of the problem with no work shown, will receive a maximum of 2 points in content and a maximum of 2 points in Problem Solving.
- A student can receive the top score point in Problem Solving if the strategy used would result in a correct answer even though the response contains computation errors.
- A student can receive the top score point in Problem Solving if an error made in the "content" portion is used with an appropriate strategy to solve the problem.

Constructed-Response
Standard 5: Measurement
Standard 7: Problem Solving

Question 1

Ms. Smith bought a sandbox that is shaped like a rectangular prism. A diagram of the sandbox is shown below.



Each bag of sand Ms. Smith buys to fill the sandbox contains 3 cubic feet of sand.

How many bags of sand will Ms. Smith need to buy to fill the sandbox HALFWAY?

Volume of rectangular prism $= lwh$ $=$ length $\times$ width $\times$ height

Show All Work

Answer _____ bags

Exemplary Response:

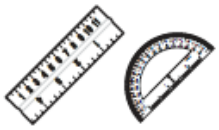
- 14 bags

- Sample Process:
  - Volume = 7 x 6 x 2 = 84 cubic feet
  - Filled halfway would be 84 ÷ 2 cubic feet
  - 42 ÷ 3 = 14

  OR
  - Other valid process

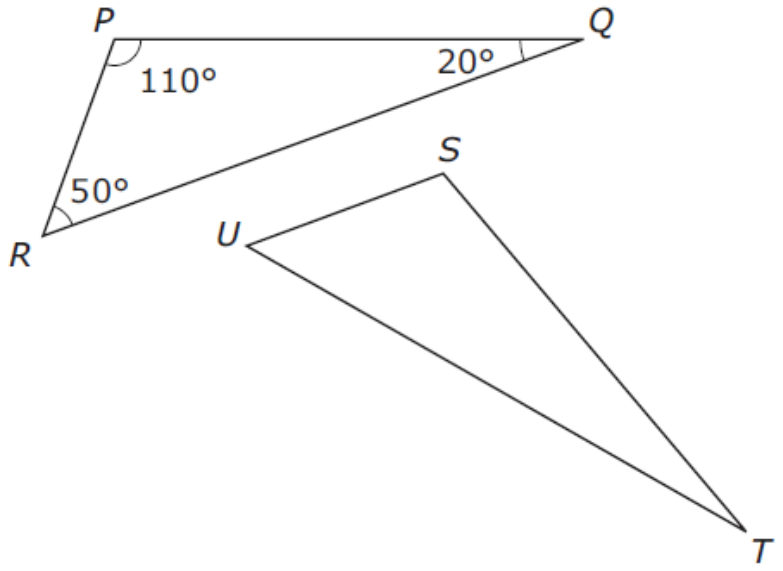
Constructed-Response
Standard 4: Geometry
Standard 7: Problem Solving

Question 2



Use your ruler and protractor to solve this problem.

Triangle STU is congruent to triangle PQR.



What is the measure of each angle of triangle *STU*?

Angle *S* _____ **Angle *T*** _____ **Angle *U*** _____

On the lines below, use words, numbers, and/or symbols to explain a way to prove that the two triangles are congruent without measuring the angles.

_____

_____

_____

_____

Exemplary Response:

- Angle *S* 110°
- Angle *T* 20°
- Angle *U* 50°

AND

- Measure the sides of each triangle. If the sides of one triangle are the same as the sides of the other triangle, then the two triangles are congruent.

OR

- Other valid response

Constructed-Response
Standard 1: Number Sense
Standard 7: Problem Solving

Question 3

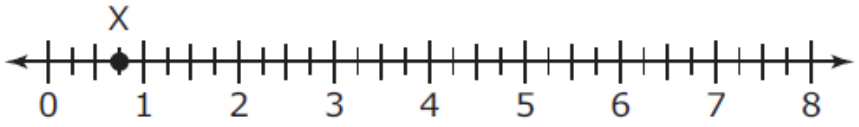
Jenny's family ordered 4 medium pizzas. They ate only 2.5 pizzas.

How many pizzas were left over? Write your answer as a fraction or as a mixed number.

Show All Work

Answer _____ pizzas

Plot a point on the number line below showing the number of pizzas they had left over. Label the point "P."



Point X on the number line shows the number of pizzas eaten by Jenny. Write this number in DECIMAL form.

Answer _____

Exemplary Response:

- 1 ½ pizzas

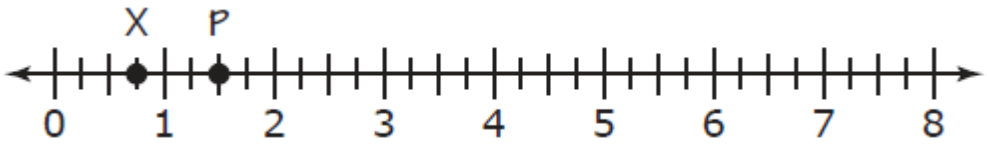
OR

- Other valid response

- Sample Process:
  - 4.0 – 2.5 = 1.5 = 1 ½

  OR
  - Other valid process

AND



AND

- 0.75

Extended-Response
Standard 5: Measurement
Standard 7: Problem Solving

Question 4

Mel, Nick, and Luke bought lunch at a sandwich shop. The menu is shown below.

Sandwich Shop Menu

Food	Cost
Sandwich	$4.69
Salad	$4.25
Juice	$1.08
Yogurt	$0.79

Mel ordered one of each item on the menu. How much did he pay?

Show All Work

Answer $ _____

Nick paid $20.00 for 2 sandwiches and 2 yogurts. He received $9.04 in change.

On the lines below, use words, numbers, and/or symbols to explain whether Nick received the correct amount of change.

Luke spent $6.56 on 3 items, including a sandwich.

What did Luke order with his sandwich?

Show All Work

Answer _____, _____

Exemplary Response:

- $10.81

- Sample Process:
  - $4.69 + $4.25 = $8.94
  - $8.94 + $1.08 = $10.02
  - $10.02 + $0.79 = $10.81

  OR
  - Other valid process

AND

- Nick received the correct change because $4.69 + $4.69 is $9.38 for the sandwiches and $0.79 + $0.79 = $1.58 for the yogurt. His total cost was $9.38 + $1.58 = $10.96 and $20.00 – $10.96 = $9.04.

OR

- Other valid explanation

AND

- Juice
- Yogurt

OR

- Other valid response

AND

- Sample Process:
  - $6.56 – $4.69 = $1.87 is the amount Luke spent, not including the sandwich.
  - $1.87 – $1.08 = $0.79
  - Luke must have bought a juice and a yogurt with his sandwich.